IN SAFE HANDS

Releasing the Potential of Clinical Teams

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Conflicts of interest: None

Abstract

Public confidence in the safety and reliability of healthcare has declined around the world over the past twenty years. Consequently, governments and healthcare providers are under increasing pressure to improve standards. Several decades of the patient safety movement have had mixed results and have not delivered the transformation in reliability that politicians and the community expect. Public inquiries continue to find the same system weaknesses. Fresh solutions are needed that are effective, sustainable, scalable and affordable.

Healthcare is delivered by teams. They are the basic units of production within healthcare systems. In other words, they are the constituent microsystems of the health care macrosystems, upon which performance reliability depends. Highly functioning healthcare unit teams deliver the best health care and achieve the best outcomes for their patients. Conversely, poorly functioning teams put patients at risk and their system failures are *universal root causes* of patient safety and quality problems in health systems around the world.

Therefore, building highly functioning health care unit teams which are resilient and adaptable, then replicating the essential attributes of these teams across healthcare organizations is a means of building high reliability healthcare systems. We propose a practical means of achieving this.

A tragic case

In November 2005, Vanessa Anderson, a 16 year old, died in hospital two days after being hit on the head by a golf ball while playing golf with a school friend. The subsequent Coroner's inquest found that there were failures in her care and that her death was preventable.[1] The coroner stated "... I have never seen a case such as Vanessa's in which almost every conceivable error or omission was detected and those errors continued to build one on top of the other". He found that she died from over-sedation, not from her minor head injury.[2] This tragic case came against a background of escalating coverage by the media in New South Wales (NSW) of community concerns about patient care. This case and others gave rise to a Special Commission of Inquiry into NSW public hospitals.

The subsequent Inquiry report, published in November 2008, described well the problems that affect the NSW public health system, and identified "deficiencies in present models of care in public hospitals".[3] Cases like Vanessa's and consequent inquiries are all too common in health systems around the world. Such cases demonstrate systemic failures of teamwork and coordination, fragmented care from multiple clinicians and failures to hand over critical information from one individual to another and from one team to another.

Public inquiries into such system failures around the world tend to find the same system weaknesses, including failures of clinical governance, deficiencies in teamwork and the failure to include patients as informed members of the team.[4,5]

Many of the solutions in the NSW Special Commission of Inquiry report were targeted at the 'macrosystem' level, such as establishing and enhancing a number of public bodies to provide assurance of safety and quality in the health systems. These were called the "four pillars", which have now become the Clinical Excellence Commission (CEC)[6], the Agency for Clinical Innovation (ACI), the Bureau for Health Information (BHI) and the Health Education and Training Institute (HETI).

While many of the recommendations from the Inquiry have been or are being implemented, they provide a patchwork of solutions which can only touch the surface of the problems that exist. However, just as in other inquiries around the world,[7] what else can be expected from a single inquiry or even multiple inquiries when the problems faced are so deep-rooted? System weaknesses seem destined to persist on an unacceptable scale, unless we can find solutions that fundamentally change the reliability of health care.

The problem with healthcare

Although the circumstances may differ, the system failures that result in such harm to patients are common. Fortunately, the professionalism, commitment and skill of staff prevents such cases being more common. However, such cases continue to erode public confidence in safety and quality.[8,9] Medical error and patient harm is costly in both financial and political terms. Health care places national budgets under strain and health systems around the world appear to be stuck in a tightening cycle of increasing demand, rising expectations, and declining confidence.[10] When things go wrong, a punitive culture leaves a legacy of failure and resentment. Pessimism exists among the very people upon whom the system depends to deliver improvement. An uneasy sense of crisis prevails.[11]

Clinicians, managers, administrators and politicians are seeking solutions.[12] Those responsible for delivering care and running hospitals may feel under siege. The morale of staff is suffering. Staff turnover rates are high.[13]

Strategies to improve performance and restore confidence are clearly needed but candidate solutions seem unequal to the task. Yet all good solutions take time and patience to work.

Faced with a loss of public confidence in healthcare, the instinct of politicians is often to centralise control, restructure and signal that providers will be held accountable for their failings. Also, specific solutions chosen by governments often have short-term horizons and focus on individuals rather than systems. Often, the changes advocated are structural and concern the macrosystem, but solutions must operate at the microsystem level – at the front lines of patient care.

If we are to treat the disease, we must start by making a diagnosis. Drawing on a variety of sources, including experience from the NSW Patient Safety and Clinical Quality Program, and a review of patient safety commissioned by the CEC,[14] the CEC has derived a list of *universal root causes* of failure in health systems:

1. Culture –punitive, blaming system, which is tribal, and disengages crucial groups, particularly the clinicians

2. Clinical governance – ambiguities about who is responsible for what in healthcare, and lack of clear lines of accountability for safety and quality
3. Communication – poor exchange of essential information among healthcare providers and with patients and their families
4. Teamwork and coordination of care – poor multi-disciplinary collaboration, care planning and delivery in a fragmented system of care
5. Capacity and capability – mal-distribution of human resource and skills, both geographically, and over time (daily, weekly and seasonally)
6. Appropriateness of care – failure to deliver an appropriate level of service to patients when it is needed or failure to escalate care to a service that can meet patients' needs.

The universal challenge is to design and build health systems that reliably deliver excellent care and are resilient into the future. This will require understanding and resolution of the fundamental weaknesses of these systems, in other words, the 'universal root causes' of system failure. Two things are therefore needed: a different way of understanding the problems and, based on this, practical means of transforming the reliability of the delivery system – at the microsystem level.

Over the past 20 or more years, considerable effort has been invested in improving the quality and safety of care in health systems around the world, applying systems approaches taken and adapted from other industries (such as total quality management, Six Sigma, Lean Thinking and human factors engineering), and by designing problem-specific evidence-based strategies employing 'calls to action' such as the 100,000 lives campaign to tackle surgical site infection, ventilator-associated pneumonia and a number of other such problems.[15]

There are important lessons to be taken from these past efforts to improve patient safety and quality. These are that macrosystem level responses, such as the calls to action, can work but may have limited sustainability, and hence scalability, because the effort required to implement them is likely to be substantial. Current macrosystem approaches are also commonly designed to address specific patient safety problems (such as falls, hand hygiene or reducing human factor errors in surgery) with specific solutions and generally do not directly address the universal root causes of system failure. This may be why they have not achieved the transformation in healthcare reliability that is demanded. The quest for effective, sustainable, scalable and affordable solutions therefore continues.

The importance of teams

Good patient care depends on teamwork, and the performance of teams. Dependence on teams and teamwork grows as the complexity of healthcare and the move towards subspecialisation increases.

There is now substantial evidence that demonstrates the benefits of effective teamwork on patient care processes and outcomes.[16,17] For example, those organisations that can demonstrate that they have effective teams show:

- Reduced patient lengths of stay
- Reduced unexpected deaths
- More satisfied staff

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- Reduced overall costs of care

Of course, clinicians recognise how important teamwork is. Results from the 2010 Quality Systems Assessment, a NSW-wide self-assessment completed by clinicians and managers with governance responsibility for patient safety and quality, showed that there is a high degree of importance attached to teamwork and its role in delivery of quality healthcare in their departments or units. Over 90% of respondents rated teamwork as the most important or in the top three factors affecting the delivery of safe, quality healthcare. However, when asked if their units had established or developed any specific guidelines or protocols to guide or support health professional cooperation and teamwork, only 35% said 'Yes'. [18]

There is also data available in NSW on the views of patients on teamwork. Results from the 2009 patient survey of 77,967 patients showed that *staff teamwork* matters most to patients.[19] Among patients who offered excellent ratings relating to their care, how well the doctors and nurses worked together was the main factor that influenced their rating. Among patients who offered fair or poor ratings, how well the doctors and nurses worked together was also the most influential factor. Clearly, teamwork is very important to patients and staff.

This is not surprising. What is surprising is how little attention is given to building and sustaining effective teams and teamwork in health care. Indeed much of what we do can directly undermine or cut across teamwork. For example, the focus on error, and the consequent focus on individual failure, as opposed to system weakness, leads to a climate in which individual members of teams have the incentive to blame each other for failure, rather than accept collective responsibility for solutions to system problems.[20] Focusing on systems changes the message from a negative to a positive, as long as the right balance is struck and team members do not feel a blind eye is turned to serious failures and transgressions.

Understanding healthcare systems

Healthcare delivery systems are complex social-technical systems. Alistair Mant has likened such complex organisations to 'frogs', and has argued that treating them like 'bicycles' risks damaging them.[21] By this he means that one cannot simply deconstruct or reconstruct them like one can a machine, replacing one damaged part with a new one, because they are like organisms. What makes them like organisms is that they consist of interacting networks of people.

Taking this analogy further, these 'organisms' have 'organs' and 'organ systems' comprised of 'cells'. The cells are the basic units of production for the organism. The health and vitality of the cells determines the health and vitality of the organism. In the health care system the 'cells' in this analogy are the patient care teams , which give direct care to patients.

This logic suggests that if we are to address the problems of the system, we should understand what these units or cells do. Then, having understood this, ensure that the other parts of the system support the essential functions of these units or cells. In other words, we should recognise the central importance of the constituent units of the system, the healthcare unit teams, as the source of its problems and of its solutions – the building blocks of a healthy system. These cellular building blocks are clinical *microsystems*.

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Ireland, 15-17 April 2012*

The clinical microsystem, as an organisational construct, is a systems approach to understanding clinical care based on theories from organisational development, leadership, and improvement. Over the past decade, the concept of microsystems has been increasingly applied to understanding healthcare systems and explaining their performance.[22,23] A clinical microsystem can be defined as "the small, functional front-line unit that provides healthcare." The microsystem includes the people who work together, the defined setting in which they work, the individuals who receive the care, the processes and activities needed to accomplish the work, and the information and information technology that supports the work. Examples of microsystems in healthcare include emergency departments, ICUs, surgical teams, etc. To succeed, the microsystem must: 1) do the work, 2) meet both patient and staff needs, [and] 3) maintain themselves as a functioning clinical unit."[24]

Empirical research on the microsystem began in the late 1990s by investigating high-performing clinical microsystems.[25,26] This initial work on a search for the highest-quality clinical microsystems in the USA provided important background information for the Institute of Medicine's Committee on Quality of Healthcare in America in writing "Crossing the Quality Chasm."[27] That research led to a larger body of research, translation and application as the concepts were disseminated to multiple healthcare settings as well as to multiple geographic areas.

This microsystems research found that there are several "success characteristics" in practices that provide high quality, cost-efficient care. The success characteristics reflect what people working in high-performing practices say about their work and how they do it. These characteristics are leadership, organisational support, staff focus, education and training, interdependence, patient focus, community and market focus, performance results, process improvement and information and information technology.

We argue that these success characteristics are just as relevant to ward or unit-based clinical teams, which depend on leaders who empower individual autonomy and accountability, through building knowledge, respectful action, reviewing and reflecting. And which depend, for example, on having a *staff focus*, including selective recruitment of the right kind of people, orientation processes designed to fully integrate new staff into culture and work roles, and in which expectations of staff are high regarding performance, continuing education, professional growth, and networking. Similarly, they also depend on *interdependence,* which means that the interaction of staff is characterised by trust, collaboration, willingness to help each other, appreciation of complementary roles, respect and recognition that all contribute individually to a shared purpose, which is their primary concern of meeting all patient needs; which is the success characteristic of *patient focus* — caring, listening, educating, and responding to special requests, innovating to meet patient needs, and smooth service flow.

Patients are clearly the reason for their existence. Furthermore, patients should be the central decision makers about clinical care in these microsystems, although they rely on the advice of clinicians for the clinical choices that they make.

The clinical members of these microsystems are drawn from a variety of disciplines, and also belong to a variety of discipline-based teams (e.g., nursing, medical and allied health). So the clinical team or microsystem is fluid. Members come and go, over time, as they form and disband around the

performance of particular tasks or groups of activities. This may seem like shifting sands upon which to build the foundations of the solid and reliable system that healthcare needs. However, members do form an identifiable team or microsystem focussed on the care of the patient or a group of patients. In other words, the tasks that teams perform in healthcare have a central focus (i.e. the patient), around which a team is 'anchored', which usually has the additional stabilising characteristic of having a discrete geographic location in which care is provided (i.e. the ward or other clinical unit). These teams also have another key stabilising characteristic which is that they have identifiable leaders and a defined identity and culture. From these starting points we can begin to identify discrete clinical microsystems and understand what they do and the functions they perform.

So these clinical microsystems are the fundamental providers of patient clinical care and hold the key to addressing the universal root causes described in this paper.

The way in which the members of discipline-based teams intersect or are brought together around the care of patients, and therefore form the clinical microsystem team, is depicted in Figure 1:

Figure 1

Clinical teams operate at the unit (eg. ward) level
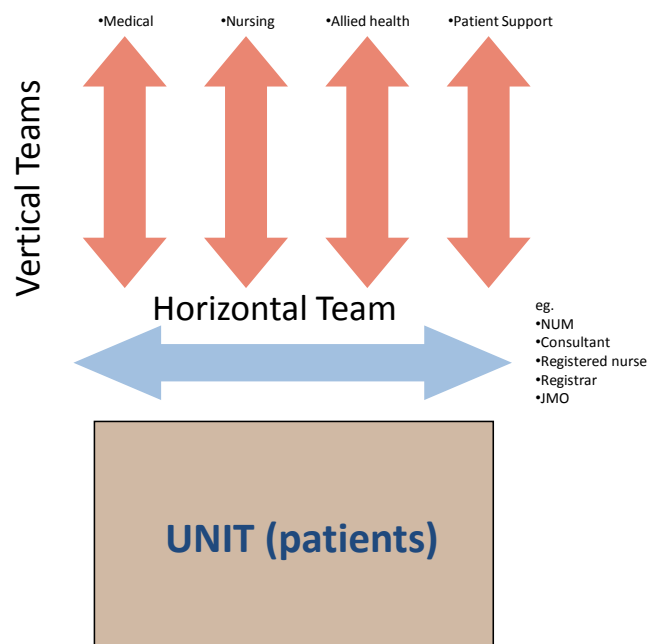
Adapted from a model by Professor Steven Boyages

The 'Horizontal Team' is a clinical microsystem. It draws its members from the 'Vertical Teams' which are profession- or discipline-based. This Horizontal Team provides and coordinates care for the patient.

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Towards transformational change

As healthcare systems have been evolving their patient safety and improvement programmes, so have other industries, and the cross-pollination of ideas has been facilitated by safety experts such as James Reason, Jim Bagian, Sidney Dekker and Rene Amalberti. The history of this evolution (in a variety of industries) has been traced by Borys in a recent paper describing the various 'ages' of safety. Borys demonstrates an evolution towards what he calls "the adaptive age of safety".[28] He traces several waves or phases. The first *technical*, the second *systems* and the third *culture*, followed by the current *integration* phase, in which we are integrating the previous three. Borys now argues that it is time to move on to the *adaptive* age which demands that we embrace "adaptive cultures and resilience engineering and requires a change in perspective from human variability as a liability and in need of control, to human variability as an asset and important for safety". In other words, the capacity of individuals to make their own risk assessments and judgements is critical to an adaptive resilient system.

Similarly, Amalberti and colleagues have argued that we need to strike the right balance between two key means of improving safety: safety as imposed by rules and safety as managed by the individual,[29] if we are to optimise the safety of health care systems. This is an argument for taking advantage of and enhancing the risk management skills of individuals in identifying risks to patient safety and addressing them. Particularly in the health system, the capacity of individual clinicians to make good judgements about risks to their patients and to manage these appropriately is and always has been a foundation for optimal medical care. The capacity of the individual to manage risk is further enhanced by the capacity of the team or microsystem to jointly manage risk.

We argue that transformational change in the reliability of health systems requires a microsystems focus for our improvement efforts, based on healthcare unit teams. This microsystems approach requires devolution of decision-making authority to the unit and individual level for the management of clinical risks, including their assessment, prioritisation and treatment, and the maintenance of structures and processes by the macrosystem to support this. This approach takes advantage of the adaptive capacity of individuals and teams. The aim is to strike an optimal balance between external and internal control of risk management.

At the heart of this microsystems approach is the patient, supported by clinical and non-clinical members of the team, whose individual autonomy is primarily limited by the ethical principle of respect for the autonomy of the patient and also by the rules agreed by team members governing their conduct and their individual roles in that team. The microsystem thus enhances the capacity of each individual to solve problems, make good decisions and deliver excellent care.

The foundations for such teams are underpinned by shared values. One approach to doing this is by using the Transformational Practice Development Method whereby teams are empowered and enabled to perform well and practice effectively.[30]

This devolutionary, adaptive approach may be pitted against the controlling and centralising instincts of politicians and administrators, and leave them feeling exposed to risks of criticism for letting go of the system for which they are responsible, but, contrary to their instincts, this approach is likely to reduce such risks to patients, and therefore leave them less exposed to the consequences of these risks. This devolution of decision-making authority must be balanced by appropriate

support from the macrosystem, in all aspects of culture, governance, skills development, resources and provision of necessary tools. Recent research supports this approach and shows that 'high-value' health care organizations deliberately design microsystems of the kind we describe.[31]

The challenge then is how to implement such an approach. We argue that we should start by understanding the functions that microsystems perform, so that these functions can be supported with the necessary standards, education, tools and resources.

A Framework of 10 Functions

In 2007, Sydney West Area Health Service (SWAHS)[32] defined a number of essential elements that must function well to enable clinical teams to perform effectively at the ward or unit level. This framework of 10 functions formed the foundation of a programme for building effective teams,[33] and is now being adopted as the foundation for a programme called In Safe Hands.[34]These functions provide a means of operationalising microsystems theory at the clinical unit level.

These functions are:

1. Leadership and Governance
2. Team Structure and Dynamics
3. Care Planning and Coordination
4. Standard Protocols and Procedures
5. Patient Safety and Quality Systems
6. Patient Experience Handling
7. Education, Training and Supervision
8. Workforce Management and Development
9. Information Access
10. Support Services and Equipment

The fundamental premise of this framework is that all of these elements must be synergistic. Where they work well, a unit will achieve high levels of performance and be self-sustaining. Where they don't, there is a greater likelihood that the team will provide poor care and patient experiences will be unsatisfactory. What is more, the work satisfaction of staff is likely to be poor.

For example, first and most important among these elements is *Leadership and Governance*. Without good leadership and clear governance, teams are invariably less effective. Leaders who bring together a team of individuals and get the best out of each member, leading by example and demonstrating the values that they espouse will achieve the best performance.[35]

Teams and leaders require structures for consultation and decision making and the roles of individuals need to be clear. They also need to have processes that ensure healthy communication and interactions among members. Again, there is no surprise that these are important, and good leaders know this, but in health there is little emphasis on supporting leaders in establishing the team structures that are essential to the performance of their teams, or on managing and understanding the dynamics of their team. Arguably the most important team structure, in the clinical context, is the multidisciplinary or interdisciplinary ward round. Ward rounds provide a formal mechanism for meeting, discussing and agreeing on a plan of action and for reviewing such

plans, at which members of the team can contribute their ideas, obtain answers to their questions (particularly the patient) and agree on the way forward. Traditionally these essential team decision-making forums have been unstructured with no set times, membership, or leadership. However, there is evidence now from Emory University that structured interdisciplinary bedside rounds (SIBR) are sustainable and effective. [36]

Another essential function of teams is to plan for and coordinate the care of their patients, as is the standardisation of core procedures at the ward or unit level to ensure greater efficiency and effectiveness.[37] Similarly, Patient Safety and Quality Systems ensure that lessons are learned and acted upon. Teams must also focus specifically on managing patient experiences and establishing procedures for doing this. Furthermore, all members of the team need to be appropriately educated and trained for the roles that they perform. Supervision from other members of the team is also crucial to ensuring that they perform their roles appropriately and learn from those with more experience. Effective workforce management means having the optimal balance of people with the right knowledge and skills in the right places at the right time, within the available resources. Good care depends on good decisions, which depends on having the right information as a foundation for these decisions. Support services and equipment are also essential for the delivery of good care.

The health system needs to be designed to support clinical teams in performing all these functions at the unit level, across all service providers, including community and other non-hospital services.

Implementation

If the microsystems approach we are describing is to work, multidisciplinary teams will need the essential standards, tools, resources and training to perform their essential functions. Many such tools exist and teams will develop their own as they need them but they will also require support in designing and developing some.

Such essential tools include practical procedures for the structures and processes for ward rounds, handover between clinicians, observation charts, care planning, clinical documentation, incident review and risk management, complaints handling, and so on. In other words, the essential functions of clinical teams. The most fundamental of these is the partnership between patients and their families/carers and the healthcare team, which requires effective relationships to be built as the foundation for effective communication.

In NSW, the Nursing and Midwifery Branch of the NSW Ministry of Health has developed tools as part of its Essentials of Care Programme and Take the Lead initiatives and these are already being widely used. Another source of valuable tools is TeamStepps,[38] which is an initiative of the Agency for Healthcare Research and Quality in the US. Further tools have been developed as part of the NHS Releasing Time to Care: Productive Ward initiative.[39]There is no shortage of tools. What is required is a coordinated approach to providing the system and individual units with the tools that they need.

Further examples of tools are illustrated in the following diagram (Figure 2), which lists some that apply to clinical unit teams.

In Safe Hands Framework and Practical Tools

Charles Pain and Susan Whitby, 2007

Figure 2

Discussion and conclusions

Strategies that are transformational and have a global impact on patient safety and quality are rare. To have the best chance of success, such strategies need to be self-sustaining and replicating, deliverable within existing local resources, and grafted into existing governance and operational structures.

Logically, a microsystems approach offers sustainability, when supported by the macrosystem, because at the microsystem level there is the capacity and expertise to continually make and act on the decisions required to maintain the performance of the individual cells or units within the system. The approach offers scalability because the essential functions of the units are broadly similar and the strategies for improving their performance are replicable across units. Comparative affordability is based on the inherent efficiency of the approach.

It is time to build on previous approaches to improving the quality and reliability of healthcare by adopting a comprehensive microsystems approach .This is one which is 'multivalent', and tackles the 'universal root causes' of patient safety and quality by addressing the fundamental processes of

care, and which is complemented by comprehensive macrosystem support for the functions of the microsystem.

A focus on microsystems and building effective multidisciplinary teams can create resilient, high reliability health systems, by replicating the essential attributes of these teams, identified by microsystems research. It is argued that such an approach promises to prove the *law of increasing returns*, by which an intervention that is effective at improving the fundamental processes of care and which is proximate to the universal root causes, yields greater returns than those targeted at individual patient safety problems, like, for example, falls in hospital.

Implementing this approach on a scale required to achieve the transformational change envisaged in this paper and demanded by patients, providers, public and politicians alike will require structural and process change on a system-wide scale, based on an understanding of the needs and functions of microsystems (with patients at their centre), supported by the macrosystem. The overall scale of change required should not be a deterrent because it can be staged in manageable steps which build on existing programmes and initiatives. Indeed, it is important that the proposed change is shown to build on existing foundations and should certainly not be presented as another new programme that overturns what has gone before.

The transformation will involve changes to culture and governance, resources, knowledge and skills, and tools. For example, at the macrosystem level, governments and those who run health systems will need to signal and demonstrate their leadership of a culture of trust and respect, which are foundations for the cooperative team-working microsystems that are required. So, for example, Chief Executives will need to demonstrate their leadership of organisational culture through all the means at their disposal, including 'executive rounding' and promulgation of 'compacts' between staff. Effective microsystems will also depend on clarity at all levels of the organisation regarding who is responsible for what and who reports to whom. Beyond this, the core standards, tools, skills and resources to perform each of the essential team functions (Figure 2) will need to be identified by the microsystems, supported by the macrosystem. For example, essential team decision-making structures will need to be revised or developed such as inter-disciplinary ward rounds, using such formats as SIBR. The microsystem's leaders and members, according to their role and experience, will need to decide which tools, skills and resources they need, and then prioritise and obtain these with the support of their organisations (the macrosystem).

Demonstration sites will need to test and develop the tools, skills and resources and provide coaching to other sites as the approach is taken up and rolled out across organisations. Designated coaches will also need to support microsystem teams with implementation.

Ultimately, the viability of this approach will depend on whether governments and administrators will take the risk of devolving risk management down to the level of microsystems and can accept that this will place patients in safe hands. The Clinical Excellence Commission is developing a microsystems approach for implementation in NSW.

The model presented in this paper draws upon discussions and the exchange of ideas with numerous colleagues. The authors would like particularly to acknowledge Susan Whitby, formerly the Director of Nursing for SWAHS, who collaborated on defining the ten functions of Team First. The authors are also especially grateful to Dr Peter Kennedy from the NSW Clinical Excellence Commission for his encouragement and support for the further development of this model.

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